

Eötvös Loránd University
Faculty of Education and Psychology
Graduate School of Educational Sciences
Leader: Éva Szabolcs, Professor
Learning and Teaching program
Leader: Ágnes Vámos, Professor

Theses of the Doctoral (PhD) Dissertation



Gyula Danyi

New media in learning and teaching

Supervisor:

Sándor Forgó
Head of Department
College Professor

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„We talk of a concept that was first applied in the art of multimedia, and basically not for the usage of digital media (educational), but for the modern and collaborative usage of each single medium and the creative application of communal media genres.”

Andrea Kárpáti

The topic of the thesis

Newmedia¹ is not a tool, new media is not only an education technology; new media is a conception, educational strategy, which materializes in its own context with a well-defined tool and usage of tools, with the electronic methodology of explorer pedagogy, with contents organized on the basis of free narration. At the time of writing this thesis, there exist several points of view concerning new media; some of which regard new media as a tool or one of the applications or services of web 2.0. Researchers on this opinion claim that new media is nothing else but a technological discipline, that appeared - similarly to computers - in the society of information and demanding a position in Educational Sciences as well.

The organisation of this thesis does not happen in accordance with these theories. The main point of the dissertation is that new media is assisted by free narrative and its main sources are databases, having its own tool system that can be associated with a well-defined methodology. With the help of all these factors, it can construct a complex educational paradigm, reminding us of the experience-oriented, explorer motivation-centered pedagogy. New media opens the possibility of a new artistic way of expression, as it is not only the tool of self-expression, but a complex system which - in the hand of the artist – forms a new means of communication and catharsis. Newmedia is highly dependent on mere chance, because the line of data units brought to the surface from the databases does not

¹ The writing method of new media in our country has changed a lot in recent years. We can experience more writing methods in Hungarian scientific writings such as Új Média (New media), ÚjMédia (NewMedia), új média (new media) and újmédia (newmedia). From our point of view 'newmedia' expresses the most the complexity of this concept, as it is not its novelty that we highlight, with the words of Aczél 'We do not emphasize novelty, but the change, the transformation from within the inner system'. Aczél (2010. p 109): Netorika. A digitális retorika és jellemzői. In: Kukorelli Katalin (editor) A tartalom és forma harmóniájának kommunikációja. XII. Dunaújvárosi Nemzetközi Alkalmazott Nyelvészeti és Kommunikációs Konferencia (2010). 109 p.

happen linearly or in the confines of strict structures, but builds up a special dramaturgy.

In this survey we focus on the relation between new media and education. The research was greatly influenced by Lev Manovich who was originally Russian but lived and worked in New York. His theses will be often referred to in the researches of this essay.

While writing the dissertation we received numerous guidelines and help from the professor, so besides illustrating its status in Hungary, we also reveal the features of international trends in our discourse.

According to our views newmedia, with the appropriate content structure, the whole process of learning and teaching is concerned.

The presence of newmedia can be very effective in learning and teaching procedures. In traditional learning-teaching models, the process commences with the educator providing appropriate psychological conditions for learning and teaching, and then he applies motivational factors in accordance with his purposes. Preparing for teaching new information includes processing new information together; the new cognitive material is reached with the assistance of the educator. These pieces of information are later analysed, discussed in the group to make it easier to remember, sometimes (depending on the topic) verified. At the end of the process they check the knowledge received. The description in a time spiral of this process will be displayed in the following illustration.

Newmedia presence can be useful throughout the whole process; newmedia applications can make purpose orientation easier for educators. We can set the priority of purpose systems; therefore differentiate between the purpose orientations of each step in the process. Newmedia can also be useful within the terms of motivation. Hand in hand with 'new' 'explorer' features with curiosity, emergence and the feeling of success, newmedia can have a positive influence on learning-teaching processes. When creating and planning the material for the new information, newmedia is present as a complex system. It supports getting the information, the organisation and processing the contents. It can have a great significance in confirming learning steps, as a demonstrator, supplementary component or the provider of the parallelism of each procedure. Newmedia can play a leading role in getting familiar with the information material with multimedia features, we can take advantage of the properties of interactive media therefore create a form of knowledge transmission, that are more than IKT possibilities. Analysing and processing the new information with the useful supplementary possibility improves the efficiency of the learning and teaching procedure. In pedagogical measuring and evaluation however, we see an outstanding possibility, as the presence of newmedia makes it possible to monitor the student (evaluate) without him realizing that he is monitored at all. There is no exam stress, anxiety, associated excitement that would have a harmful effect on the results of the student. As a whole, we imagine the presence of newmedia in learning processes with its complexity.

Regarding the structure of the thesis – in contrast with its topic – it is organised along a linear narrative, therefore in this manner, we deal with the theoretical background of newmedia and the relation between newmedia and

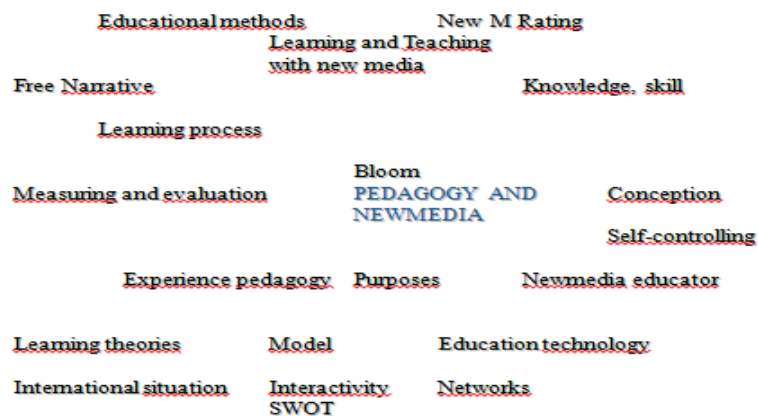
learning-teaching. After summarizing the theoretical background, we examine the connection between newmedia and learning-teaching in practice, then we present an international insight to the newmedia-based learning and teaching processes that can be found in several countries all over the world. In this thesis, besides presenting relevant researches concerning the topic, we also present five researches of newmedia that might prove the presence of newmedia in Hungarian learning and teaching processes. In the beginning of our survey we prepared the topic mapping of learning and teaching procedures within the confines of newmedia. Topic mappings claimed their position not only in data modelling or library sciences but in web 2.0; in the form of 'word clouds', they are indeed present in everyday internet communication as well. The dissertation contains three units, which are the following: the theoretical background of newmedia, the relation between pedagogy and newmedia and the researches of newmedia.

The topic map of each unit can be seen in the following illustration.

The first unit of the dissertation:



The second unit of the dissertation:



Topics of the third unit:

~~Newmedia reasearch 2.0~~

~~Newmedia research 3.0~~

~~NEWMEDIA RESEARCHES~~

~~Newmedia research 5.0~~

~~Newmedia resarch 4.0~~

~~Newmedia research 1.0~~

The genre of dissertation does not allow to process the content organised along free narrative, but we defined and constructed the units of the discourse in a way that makes it possible - related to the topic - to unfold and explain the arguments. By selecting each single unit from the contents by chance and out of our own will, the complexity of the dissertation becomes as perceptible as it would - according to assumptions - if organized linearly. We could also sense each (possible) topic direction with technics originated from newmedia art. In this thesis we intend to prove that newmedia is present in teaching and learning and it is expanding gradually.

Regarding Forgó's assumptions as basic, the system of newmedia is suitable to produce a teaching and learning form that can mark a separate discipline in the field of electronic learning. We think that the widespread publicity of the topic is particularly important for educational sciences, as newmedia can be found among students, for them its usage is an obvious competence. In practise, a group of skills is concerned that educational sciences must benefit from. Pedagogy is supposed to build upon this existing knowledge that is implemented to the scene of teaching and learning procedures by children, and this phenomenon can make it necessary to organise new newmedia researches in the future, as the wide spectrum of newmedia applications require continuous renewal from experts using newmedia.

Individual Researches:

Besides literal and theoretical researches we carried out five researches altogether:

The hypotheses of these researches are the following:

Newmedia Research 1.0

(1) The application of newmedia in the teaching procedures of educators
The tools, methodology and access (Internet) and their conditions of operation that assist the application of newmedia teaching and learning processes are not enough in themselves to spread newmedia teaching and learning.

(2) Knowledge of Informatics

Employing young educators (with a work experience of a couple of years) with a certain IKT competence can make spreading newmedia learning-teaching in public education faster as they received a basic IT training in primary and secondary school, along with their college education.

(3)A The world beyond IKT

The grand majority of educators associate newmedia with IKT. The dominance of the IKT systems concept can be measured. Even though the newmedia knowledge of educators is incomplete, the arguments for learning-teaching processes supported by newmedia can be clearly seen, in case all the tools are available.

(4) The disadvantages of small settlements

Those teachers that work at schools in smaller settlements know less about the possibilities of newmedia learning and teaching. Schools operating in smaller settlements have less of the conditions that are necessary for newmedia supported learning and teaching..

(5) Educators have a demand for possibilities provided by learning and teaching procedures with newmedia assistance. Educators that use IKT tools have needs and expectations concerning modern and digital educational disciplines that can be fully or partly provided by the conception.

Newmedia Research 2.0

(1) Teachers are open for the application of newmedia, they consider their knowledge as average and those educators that participated in a training in connection with IT tools can acquire relevant knowledge relatively easily. At the same time, the younger generation is more susceptible than older ones, from older generations we expect answers that emphasize the difficulties of implementing newmedia tools during the lessons. Apart from this, most of them consider it to be useful.

(2) The usage of newmedia shows a varied scale in schools, as far as we are able to judge, one typical field will be the learning of foreign languages and humanities. The electronic material applied will be varied as well.

(3) The spreading of newmedia does not only depend on educator's qualifications and intentions, but from the level of equipment in the institution. At this point, we expect high differences, between the schools of cities, and that of smaller settlements.

Newmedia Research 3.0

The presence of newmedia in public education. has a positive effect on school results in learning and teaching procedures.

Newmedia Research 4.0

- (1) NewM Rating makes it possible to measure learning-teaching supported by newmedia.
- (2) Learning and teaching with new media can have a positive influence on school results of students, including those who are not familiar with newmedia.
- (3) Optimising tools adapted to learning and teaching improves students' performance.

Newmedia Research 5.0

The presence of newmedia in public education. has a positive effect on school results in learning and teaching procedures.

The assumptions of the dissertation

The assumptions of the dissertation are divided into two groups, first we examine what sort of conclusions we can state according to theoretical studies (exploring), secondly we highlight the conclusions of applied educational researches. These assumptions will be communicated as theses.

Conclusions of theoretical researches

1. Newmedia² is not a tool, new media is not only an education technology; new media is a conception, educational strategy, which materializes in its own context with a well-defined tool and usage of tools, with the electronic methodology of explorer pedagogy, with contents organized on the basis of free narration.
2. Newmedia is more than IKT, the system of newmedia is suitable for producing a teaching and learning form that can become a separate discipline in the field of electronic learning.
3. Newmedia is not limited to the confines of internet environment. Content mapping can basically materialise on more different platforms. The two basic requirements are database (that constructs the whole procedure) and narrative describing the organisation of the process in a dramaturgic way.
4. It is method of topic organisation, the narrative itself that stands in the center of the newmedia communication model. This item is that explains the point and features of the communication process supported by newmedia. Another significant item of the model is context.
5. Free narrative is a defining feature of newmedia environment. This means that the selection and the order of topical items are highly dependent on the user's individual decision and the probability of choosing that particular item.
6. Free narration forms a network-like content organizing shape.
7. Newmedia is indeed a complex concept, as we can find among its features ones that can be shared with communal, interactive and digital media as well.

²

Newmedia is a complex media system that is a digital, an interactive and a public media too.

8. We regard as newmedia education (or learning-teaching with the help of newmedia) that process which forming a specific educational strategy happens with the assistance of newmedia (or in newmedia environment) for reaching the purposes of learning and teaching.

9. Learning with newmedia is basically deductive.

10. Learning with newmedia is student-centred and an irregularly organised process at the same time. This procedure is based on student autonomy and spontaneous knowledge exchange in a great degree.

11. We can find that the discipline of Bloom for newmedia learning-teaching is true, stating that the result of education and teaching in a newmedia environment can be well monitored in the change of behaviour (personality forming).

12. We can explain three orientations altogether with new media learning-teaching; we can talk of intellectual or cognitive development, affective, emotional or intentional purposes and psychic-motor purposes.

13. Learning and teaching with newmedia does also have significance in the field of pedagogy.

14. Newmedia learning-teaching processes provide possibilities for the implementation of self-controlling learning forms.

15. In learning-teaching procedures supported by newmedia, student's decisions play a dominant role. This undoubtedly improves children's skills to solve a problem.

16. In a newmedia learning and teaching environment, independent problem solving is defined inductively.

17. Newmedia, as a methodology includes verbal, written, demonstration and practical methodologies as well.

18. Newmedia as methodology carries receptive, reproductive, heuristic and researcher features as well.

19. Newmedia, as methodology is common learning-teaching and learning dominated.

20. Learning and teaching with newmedia is highly dependent on project methods.

21. Newmedia is an educational tool, therefore belongs to the field of education technology.

22. Newmedia is appropriate to demonstrate the emergence of facts, concepts, processes, events and laws, so to say it supports the form of documentation. Based on this characteristic point, newmedia belongs to the field of education technology.

23. Newmedia can manipulate.

24. Newmedia can be used several times in learning and teaching processes.

25. Newmedia ensures the flow of information.

26. Newmedia is significant according to Shramm's division.

27. The education technological matters of research can also be examined in the field of newmedia.

28. The NewM Rating shows the degree of newmedia presence, as a conception in learning-teaching process, compared to the time period for learning and teaching.

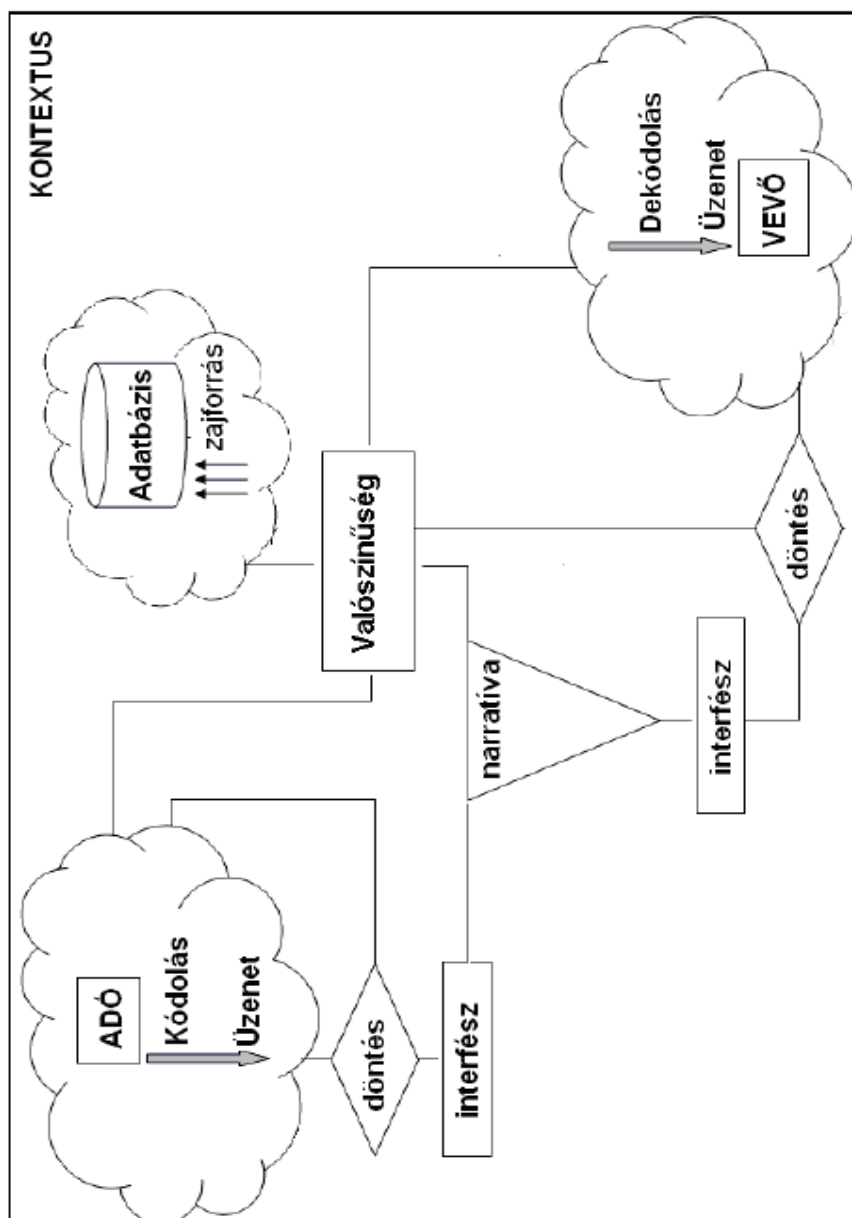
Conclusions of applied researches

- 1.The tools, methodology and access (Internet) and their conditions of operation that assist the application of newmedia teaching and learning processes are not enough in themselves for spreading newmedia teaching and learning.
- 2.Employing young educators (with a work experience of a couple of years) with a certain IKT competence can make spreading newmedia learning-teaching in public education faster as they received a basic IT training in primary and secondary school, along with their college education
3. The grand majority of educators associate newmedia with IKT.
- 4.Newmedia is present in institutions, apart from the size of settlement where the institution can be found. There can be monitored great differences, however, between the regularity and the quality, the determinism of this occurrence.
- 5.Educators basically consider newmedia learning and teaching procedures good and useful. Educators that use IKT tools have needs and expectations concerning modern and digital educational disciplines that can be fully or partly provided by the conception.
- 6.Teachers are open for the application of newmedia.
- 7.We can also state that the younger generation of educators can be regarded as more acceptant.
- 8.Educators consider newmedia to be useful at school and associate newmedia with education of a higher level.
- 9.The usage of newmedia shows a variance at schools
- 10.The spreading of newmedia does not only depend on educator's qualifications and intentions, but from the level of equipment in the given educational institution.
- 11.The presence of newmedia in teaching and learning procedures has a positive, useful, effect on the performance of student groups.
- 12.It can be concluded that newmedia presence has a positive effect on teaching and learning at school.
- 13.Information acquired in a newmedia environment could be archived in students' mental memory more easily.
- 14.NewM Rating makes it possible to measure and compare learning-teaching supported by newmedia.
- 15.The presence of newmedia has a positive effect in higher education as well. 16. Newmedia presence has a positive effect on the collective school results of student groups, learning and teaching implemented in newmedia environment proved to be more successful than those processes where newmedia was not present.

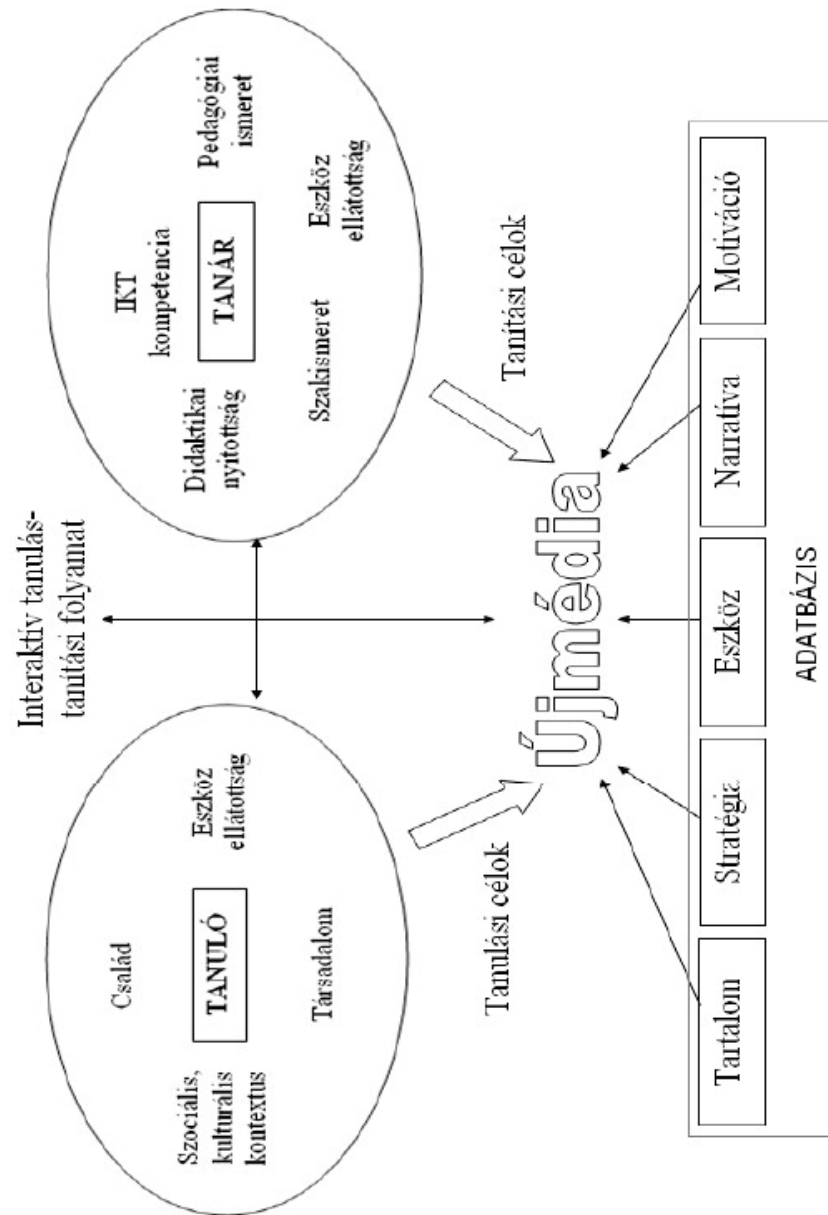
Studying learning and teaching processes in newmedia environment is important, and an up-to-date topic. This dissertation does not mark the end of my scientific researches; I regard it as an important step on a way that carries a great number of professional challenges and even more interesting facts.

Improvements of the thesis:

The model of Newmedia communication



The model of learning and teaching procedures supported by newmedia:



Newmedia presence

$$\text{NewM Rating} = \frac{n * t_0 * F_n}{N * T_{\Sigma} * F_S} * 100$$

$$SR = \frac{1}{T_{\Sigma}} * t_0$$

New media rating:

$$\text{NewM Rating} = \frac{n * t_0 * F_n}{N * T_{\Sigma} * F_S} * \frac{1}{T_{\Sigma}} * t_0$$

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